REMARKS

STATUS OF CLAIMS

Claims 1-8 are pending herein and all thereof are rejected.

ITEM 2: REJECTION OF CLAIMS 1-8 FOR ANTICIPATION UNDER 35 U.S.C. 102 (b) BY KASAHARA et al. (USP 6414657)

The rejection is respectfully traversed.

Kasahara teaches calculating noise quantities of pseudo contours by performing a logic operation on each pixel value of at least a portion (i.e, an area) of an input image (column 34, lines 14-22) and reducing the pseudo contour noise in the area based on the calculated pseudo contour noise quantity (column 35, lines 9-12).

The reduction of the pseudo contour noise is related to an object of the present invention. However, the method that Kasahara teaches for reducing the pseudo contour is not a method using superposition in accordance with the method of the present invention and instead, is completely different. Particularly, the calculation of the noise quantities of pseudo contours, disclosed and claimed by Kasahara, is not performed in the present invention and has no connection with the present invention.

Kasahara discloses five embodiments in columns 19-33. Among these embodiments, the first through the fourth embodiments are related to a first concept, while the fifth embodiment is related to a second concept. According to the first and the second concepts, the pseudo contours are reduced by methods that are different from the present invention as described below.

The first concept, or aspect, of Kasahara (see Column 3, line 50 – Column 4, line 16) is to switch a sub field structure for each field in accordance with a calculated result of the pseudo contour noise quantity. If the calculated value of the pseudo contour noise quantity in the noted field is small, sub fields having luminance weights without redundancy that are suitable for a high gradation display are used for a display of the field (see Column 19, lines 16-30). If the calculated value of the pseudo contour noise quantity in the noted field is large, sub fields having luminance weights with redundancy that are effective for reducing pseudo contours are used for a display of the field (see, for example, column 20, lines 1-6). According to the first concept, for one multi-valued image, called a field, the number of bits of the sub field data for reproducing

gradation of a pixel and the number of pulses corresponding to each bit are optimized. Therefore, if the calculated value of the pseudo contour noise quantity is different between fields, even if the gradation is the same between a pixel of one field and a pixel of the other field, different sub field data correspond to those pixels. However, if one field is noted, sub field data having the same value correspond to pixels of the same gradation in the display of the field. This means that the superposition method of the present invention is not used by Kasahara.

Note that the term "field" usually means a part of a frame in the interlace format. However, the "field" in Kasahara is regarded as having the same meaning as "frame" in the present invention, for convenience in comparing Kasahara with the present invention and thereby to clarify and reinforce the differences therebetween.

The second concept, or aspect, of Kasahara (see, Column 4, lines 18-37) is to add a partial image processing on the multi-valued image (i.e., a field) in accordance with the calculated result of the pseudo contour noise quantity. The image processing is a diffusion process for increasing or decreasing the pixel value (column 32, lines 24-39) and is performed only on an image area where pseudo contour noise is predicted to be generated (column 26 line 63 through column 27 line 2).

In the second concept, "dividing an image into an image area where pseudo contour noise is predicted to be generated and other-areas" is similar to division into the specific area and other areas in the present invention. However, in the second concept, the superposition method of the present invention is not applied either to the image area where pseudo contour noise is predicted to be generated or to the other areas.

In the superposition method of the present invention, plural sub field arrangements having different-luminance weights are prepared for one field, and then one of the plural sub field arrangements to be used is selected for each pixel. This method is not described in or obvious in view of Kasahara.

According to the present invention, the superposition method is applied only to pixels having a predetermined value of gradation. Thus, deterioration of image quality that may occur when the superposition method is applied to the entire field can be prevented. In the present invention, the complicated calculation that Kasahara teaches for determining the pseudo contour noise quantity MPD is not necessary. This is important, since improving cost efficiency of a drive and control circuit.

It is difficult to for one to understand the present invention without also understanding an advantage of the superposition method that can be realized with a simple circuit and,

further, recognizing the beneficial influence of the superposition method in achieving improved image quality. The teachings of Kasahara, of the method of calculating the pseudo contour noise quantity and the method of adding the diffusion process on an image, does not lead a skilled person in the art to, much less render obvious, the invention as disclosed and claimed herein.

CONCLUSION

It is respectfully submitted that the pending claims patentable distinguish over the art of record and, there being no other objections or rejections, that the application is in condition for allowance which action is earnestly solicited.

If there are any additional fees associated with filing of this Amendment, please charge the same to our Deposit Account No. 19-3935.

Respectfully submitted,

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